

GREEN ENVIRONMENTAL, INC.

6727 Greenleaf Avenue, Whittier, CA 90601 • (310) 698-5338 Fax: (310) 698-6358

SITE INVESTIGATION REPORT

CONTINENTAL HEAT TREATING 10643 S. NORWALK BOULEVARD SANTA FE SPRINGS, CALIFORNIA

GEI Project No. 1038-568

PREPARED FOR:

Mr. James Stull
Continental Heat Treating
10643 S. Norwalk Boulevard
Santa Fe Springs, California 90670

PREPARED BY:

Green Environmental, Inc. 6727 Greenleaf Avenue Whittier, California 90601

March 20, 1995

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1.0 INTRODUCTION

This report presents Green Environmental, Inc.'s (GEI) findings and conclusions regarding a limited subsurface soil investigation conducted at the Continental Heat Treating Facility, located at 10643 S. Norwalk Boulevard, Santa Fe Springs, California. GEI conducted the investigation activities in accordance with your October 26, 1994 Workplan and as described in our approved Proposal, dated November 1, 1994.

2.0 PURPOSE & SCOPE OF WORK

As GEI understands, this limited subsurface investigation was conducted in response to a request by Mr. George Baker, Hazardous Materials Specialist of the Los Angeles County Fire Department Health Hazardous Materials Division (LACFD), concerning the potential presence of tetrachloroethene (PCE) in the soil beneath the subject site. The subsurface investigation was requested at an interior building at a location designated by Mr. Baker. The scope of work consisted of the following activities:

- * Advance one hand auger soil boring to a depth of 10 feet at the location shown on the Site Plan, Figure 1.
- ** Collect three discreet soil samples, one at the soil surface and at the 5 and 10-foot depths.
- * Submit soil samples to a State certified laboratory for analysis using EPA Method 8240 for volatile organic compounds.
- * Prepare a report documenting the procedures followed and the results of laboratory analyses.

3.0 FIELD INVESTIGATION

Prior to conducting the field investigation, Mr. Baker, LACFD, was contacted to coordinate an agreeable time so that he would be available to observe the sampling activities. On February 6, 1995 GEI was on-site to conduct the investigation. Along with Mr. Baker, Mr. Stull, President, Continental Heat Treating, was also present to observe the activities and indicate the location of the boring. To access the soil beneath the concrete floor, a four-inch diameter concrete core was cut. Due to encountering thicker than expected concrete at the first designated location, the boring was moved approximately 1 feet to the east, at the location shown on Figure 1. Clean tap water, used very sparingly, was used to cool the core bit.

Following removal of the concrete core, a soil sample was collected at the soil surface, Sample B-1@6". The boring was drilled using a 2.5-inch diameter hand auger. Additional soil samples were collected at the 5 and 10-foot depths, Samples B-1@5' and B-1@10", respectively. Each sample was collected using a hand driven sampler, lined with one, 1.5 by 6-inch clean brass

tube. Upon retrieval, each sample tube was immediately sealed so as to prevent headspace in the sample tube. Each tube was capped with teflon sheets and plastic caps, wrapped with a non-VOC tape, labeled, sealed in a plastic bag, and placed in a cooler with ice for delivery to the laboratory for analysis. A log of the boring was prepared and is provided on Figure 2, Log of Boring B-1.

The hand auger was washed prior to beginning the boring and the soil sampling equipment was washed with a non-phosphate detergent, rinsed with tap and distilled water, and allowed to air dry between each sampling round. The boring was backfilled with the soil cuttings and capped with concrete, following sample collection.

4.0 LABORATORY ANALYSES AND RESULTS

The three soil samples were delivered under chain-of-custody protocol immediately following the field work, to CHEMTEK, Inc., located in Santa Fe Springs, California. Each sample was analyzed for volatile organic compounds using EPA Method 8240. Based on the results of laboratory analyses, PCE and trichloroethene (TCE) were detected in each sample, as shown in Table 1. The highest concentration of PCE was detected in the soil surface sample (B-1@6") with a reported concentration of 7,514 micrograms per kilogram (ug/kg or ppb). The soil sample from 10-feet (B-1@10') was reported to contain PCE at a concentration of 1,855 ug/kg.

Table 1.

Results of Analyses Using EPA Method 8240
(reported in micrograms per kilogram (ug/kg or ppb)

Sample Number	Tetrachloroethene (PCE)	Trichloroethene (TCE)
B-1 @ 6"	7,514	4,759
B-1 @ 5'	290	21
B-1 @ 10'	66	1,855

Several other organic compounds were detected at much lower concentrations, as indicated on the laboratory reports provided in Appendix A. The laboratory QA/QC data and a copy of the chain-of-custody are also included in Appendix A.

5.0 CONCLUSIONS

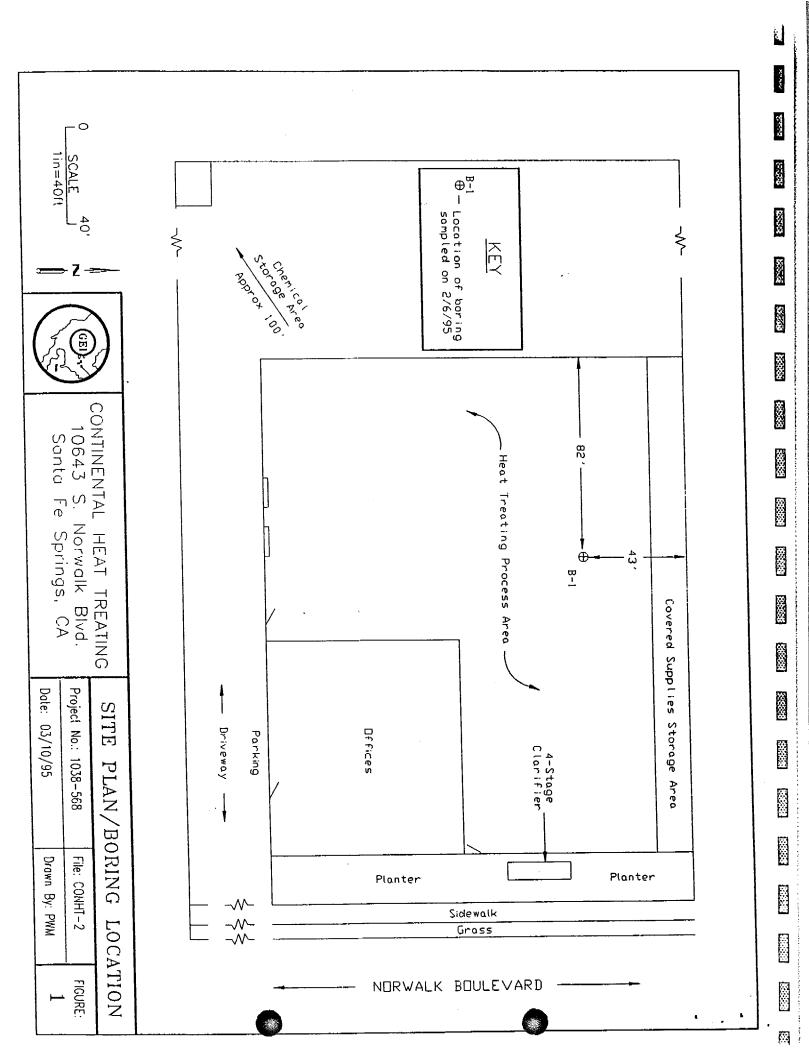
Based on the results of laboratory analyses presented above, elevated concentrations of PCE and TCE are indicated to be present in the soil beneath the site. Further site investigation is required to evaluate the lateral and vertical extent of the indicated organic compounds.

6.0 LIMITATIONS

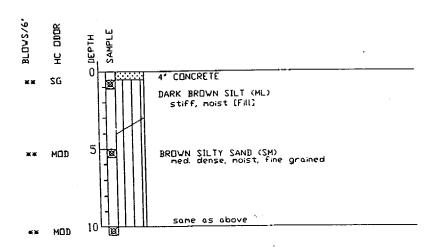
The services described in this report have been performed by Green Environmental, Inc. (GEI) and licensed or certified subcontractors to GEI. Conditions reported pertain the specific locations where samples were collected by GEI. Conditions may vary at different locations. This report contains findings, conclusions and recommendations which are based on data generated by a State certified laboratory. GEI makes no claim to its accuracy or correctness. The services performed by GEI have been conducted in a manner consistent with the level of care ordinarily exercised by members of our profession currently practicing under similar conditions. No other warranty expressed or implied is made.

(report/conheat)

FIGURES



Date: 2/6/95 Equipment: 2.5' Diam. Hand Auger Elevation: Ground Surface



Boring terminated at 10.0 feet.

No groundwater encountered during drilling.

Boring backfilled with bentonite grout on 2/3/94.

Sample submitted for analysis.

** - No blow counts due to use of hand auger.

SHEET 1 of 1



CONTINENTAL
HEAT TREATING
10643 S. Norwalk Blvd
Santa Fe Springs, CA

LOG OF BORING: B-1

 Project No.: 1038−568
 File: CHTB−1
 FIGURE:

 Date: 2/15/95
 App By:
 2

APPENDIX A

inc.

ENVIRONMENTAL LABORATORIES

14140 E. Alondra Boulevard Suite A Santa Fe Springs California 90670

Telephone

310-926-9848

Telefax

310 - 926 - 8324

CERTIFICATE OF ANALYSIS

Job No. 502016

Date: 02-08-95

This is the Certificate of Analysis for the following samples:

Client:

Green Environmental, Inc.

Project No.:

1038-568

Date Received:

02-06-95

Number of Samples:

3

Sample Type:

Soil

Samples were labeled as follows:

SAMPLE IDENTIFICATION

LABORATORY NUMBER

B-1-6" B-1-5' 502016-01A

502016-02A

B-1-10'

502016-03A

Reviwed and Approved:

Michael C.C. Lu

Laboratory Director

inc.

14140 E. Alondra Boulevard Suite A Santa Fe Springs California 9 0 6 7 0

ENVIRONMENTAL LABORATORIES

Telephone 31

310 - 926-9848

Telefax

310-926-8324

Client:

Green Environmental, Inc.

Project:

1038-568

Job No:

502016

Date: 02-08-95

Analysis: EPA 8240

Page 1 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

COMPOUNDB-1-6"DichlorodifluoromethaneNDChloromethaneNDVinyl chlorideNDBromomethaneNDChloroethaneNDTrichlorofluoromethaneND	Limit 1 1 1 1 1 2
Chloromethane ND Vinyl chloride ND Bromomethane ND Chloroethane ND	1 1 1
Vinyl chloride ND Bromomethane ND Chloroethane ND	1 1 1
Bromomethane ND Chloroethane ND	1 1
Chloroethane . ND	1
· · · · · · · · · · · · · · · · · · ·	
Trichlorofluoromethane ND	2
	-
Acetone ND	10
1,1-Dichloroethene ND	1
Iodomethane	1
Methylene chloride ND	1
Carbon disulfide ND	2
Acrolein ND	10
Acrylonitrile ND	10
trans-1,2-Dichloroethene 41	1
Vinyl acetate ND	_ 10
1,1-Dicholroethane ND	1
2-Butanone ND	10
Chloroform ND	1
1,1,1-Trichloroethane ND	1
Carbon tetrachloride ND	1
1,2-Dichloroethane ND	1
Benzene ND	1
Trichloroethene 4759	1
1,2-Dichloropropane ND	1
Bromodichloromethane ND	· 1
2-Chloroethyl vinyl ether ND	1
4-Methyl-2-pentanone ND	1.0
cis-1,3-Dichloropropene ND	. 1

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ENVIRONMENTAL LABORATORIES

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Client:

Green Environmental, Inc.

Project:

1038-568

Job No:

502016

Date:02-08-95

Analysis: EPA 8240

Page 2 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

	RESULTS IN μg/kg	Detection
COMPOUND	B-6-1	Limit
Toluene	2	1
trans-1,3-Dichloropropene	ND	1
2-Hexanone	ND	10
1,1,2-Trichloroethane	NĎ .	1
Tetrachloroethene	7514	1.
Dibromochloromethane	ND	1.
Chlorobenzene	ND	1
Ethylbenzene	ND	1
p+m-Xylene	2	2
o-Xylene	1	1
Styrene	ИD	1
Bromoform	ИD	1
1,1,2,2-Tetrachloroethane	ND	1
trans-1,4-Dichloro-2-butene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

System Monitoring Compounds	Surrogate %Recovery	QC Limit (%)
1,2-Dichloroethane-d4	103	70-121
Toluene-d8	94	81-117
4-Bromoflurobeneze	106	74-121

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Client:

Green Environmental, Inc.

Project:

1038-568

Job No:

502016

Date:02-08-95

Analysis: EPA 8240

Page 1 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

	RESULTS IN µg/kg	Detectio
COMPOUND	B-1-5'	Limit
Dichlorodifluoromethane	ND	1
Chloromethane	ND	1
Vinyl chloride	ND	1
Bromomethane	ND	1
Chloroethane	ND	1
Trichlorofluoromethane	ИD	2
Acetone	ИД	10
1,1-Dichloroethene	ИD	1
Iodomethane	ND	1
Methylene chloride	ND	1
Carbon disulfide	ND	2
Acrolein	ND	10
Acrylonitrile	ИD	10
trans-1,2-Dichloroethene	. 2	1
Vinyl acetate	ND	10
1,1-Dicholroethane	ND	1
2-Butanone	ND	(10
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1
Trichloroethene	21	1
1,2-Dichloropropane	ND	1
Bromodichloromethane	ND	1
2-Chloroethyl vinyl ether	ND	1
4-Methyl-2-pentanone	ND	10
cis-1,3-Dichloropropene	ND	1
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ENVIRONMENTAL LABORATORIES 14140 E. Alondra Boulevard Suite A Santa Fe Springs California 90670

Telephone 310-926-9848 Telefax 310 - 926 - 8324

Client:

Green Environmental, Inc.

Project:

1038-568

Job No:

License

1

502009

Date: 02-08-95

Analysis: EPA 8240

Page 2 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

	RESULTS IN μ g/kg	Detection
COMPOUND	B-6-1	Limit
Toluene	ND	1
trans-1,3-Dichloropropene	ND	1
2-Hexanone	ND ·	10
1,1,2-Trichloroethane	ИD	1
Tetrachloroethene	290	1
Dibromochloromethane	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	1
p+m-Xylene	ND	2
o-Xylene	ND	1
Styrene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
trans-1,4-Dichloro-2-butene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobenzene	ND	1

System Monitoring Compounds	Surrogate %Recovery	QC Limit (%)
1,2-Dichloroethane-d4	105	70-121
Toluene-d8	109	81-117
4-Bromoflurobeneze	103	74-121

2.5

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LABORATORIES

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Client:

Green Environmental, Inc.

Project:

1038-568

Job No:

502016

Date:02-08-95

Analysis: EPA 8240

Page 1 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

	RESULTS IN µg/kg	Detection
COMPOUND	B-1-10'	Limit
Dichlorodifluoromethane	ND	1
Chloromethane	ND	1
Vinyl chloride	ND	1
Bromomethane	ND	1
Chloroethane	ND	1
Trichlorofluoromethane	ИD	2
Acetone	ИD	10
1,1-Dichloroethene	ND	1
Iodomethane	ND	1
Methylene chloride	ИD	1
Carbon disulfide	ИD	2
Acrolein	ND	10
Acrylonitrile	ND	10
trans-1,2-Dichloroethene	ND	1
Vinyl acetate	ND	10
1,1-Dicholroethane	ND	1
2-Butanone	ND	10
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1 .
Trichloroethene	66	1
1,2-Dichloropropane	ND	1
Bromodichloromethane	ND	1
2-Chloroethyl vinyl ether	ND	1
4-Methyl-2-pentanone	ND	10
cis-1,3-Dichloropropene	ND	1

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ENVIRONMENTAL LABORATORIES

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Client:

Green Environmental, Inc.

Project:

1038-568

Job No:

502009

Date: 02-08-95

Analysis: EPA 8240

Page 2 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

	RESULTS IN μ g/kg	Detection
COMPOUND	B-6-1	Limit
Toluene	ND	1
trans-1,3-Dichloropropene	ND	1
2-Hexanone	ND ·	10
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	1855	1
Dibromochloromethane	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	ī
p+m-Xylene	ИD	2
o-Xylene	ND	1
Styrene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
trans-1,4-Dichloro-2-butene	ND	ī
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	ī
1,2-Dichlorobenzene	ND	ī

COMMENTS: 'ND' - Not Detected (at the specified limit).

System Monitoring Compounds Surrogate %Recovery QC Limit (%)
1,2-Dichloroethane-d4 92 70-121
Toluene-d8 103 81-117
4-Bromoflurobeneze 98 74-121

13

inc.

ENVIRONMENTAL LABORATORIES 14140 E. Alondra Boulevard Suite A Santa Fe Springs California 9 0 6 7 0

Telephone

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EPA 8240 Matrix Spike Recovery

Job No.:

502016

Lab Sample ID:

502009-06A

Date Performed:

02-06-95

Compound	Sample conc	Spike Added	Spike Res	Dup Res	Spike *Rec	Dup *Rec	RPD	QC Limit RPD	QC Limit
1,1-Dichloroenene	0.0	10.0	9.8	10.2	98	102	4	14	71-136
Benzene	0.5	10.0	11.1	11.1	106	106	0	14	80-120
Trichloroethene	0.0	10.0	10.1	10.4	101	104	3	14	71-142
Toluena	1.7	10.0	12.6	12.4	109	107	2	15	80-118
Chlorobenzene	0.5	10.0	11.1	10.9	106	104	2	15	84-120

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CHEMTEK ENVIRONMENTAL LABORATORIES INC.

14140 Alondra Boulevard, Suite A Santa Fe Springs, Ca. 90670

Tel: (310) 926-9848 Fax: (310) 926-8324

Note:

Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

*Key: AQ-Aqueous NA-Nonaqueous SL-Sludge GW-Groundwater SO-Soil OT-Other PE-Petroleum

DISTRIBUTION: WHITE with report / YELLOW To CHEMTEK / PINK To courier

3/2/95

Green Environmental, Inc. 6727 Greenleaf Avenue

6727 Greenleaf Avenue Whittier, CA 90601 Phone: (310) 698-5338 Fax: (310)698-6358

Fax

to:	George Buller
fax #:	213) 724-5976
from:	Rent Green
date:	3/1/85
subject: [contincted Heat Trady
pages:	including this page
NOTES:	

DISTRIBUTION: WHITE with report/YELLOW To CHEMITER / PINK To counter

" Key: AQ-Aquecus NA-Nonsqueous Sc-Shidge GW-Groundwater SO-Soil OT-Orber PE-Petroleum

Hazardous samples will be returned to client or disposed of at client expense. Semples are discerded 30 days after results are reported unless other arrangements are made. 14t (310) 926-9848 Fax: (310) 926-8324 Santa fe Springs, Ca. 90670 14140 Alondra Boulevard, Spire A

CHEMLER ENAIRONMENLYT PROKYLONIES INC'

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inc.

ENVIRONMENTAL LABORATORIES 14140 E. Alondra Boulevard Suite A Santa Fe Springs California 90670

Telephone

310-926-9848

Telefax 310-926-8324

CERTIFICATE OF ANALYSIS

Job No. 502016

Date: 02-08-95

This is the Certificate of Analysis for the following samples:

Client:

Green Environmental, Inc.

Project No.:

1038-568

Date Received:

02-06-95

Number of Samples:

3

Sample Type:

Soil

Samples were labeled as follows:

SAMPLE IDENTIFICATION

LABORATORY NUMBER

B-1-6" B-1-5' 502016-01A

502016-02A

B-1-10'

502016-03A

Reviwed and Approved:

Michael C.C. Lu

Laboratory Director

inc.

ENVIRONMENTAL LABORATORIES 14140 E. Alondra Boulevard Suite A Santa Fe Springs California 9 0 6 7 0

Telephone

310-926-9848

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Client:

Green Environmental, Inc.

Project: Job No:

1038-568 502016

Date:02-08-95

Analysis: EPA 8240

Page 1 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

	RESULTS IN pg/kg	Detection
COMPOUND	B-1-6=	Limit
Dichlorodifluoromethans	ND	1
Chloromethane	ND	1
Vinyl chlorids	ND	1
Bromomethane	ND:	1.
Chloroethane	ND .	1
Trichlorofluoromethana	ND	2
Acetone	ND	10
1,1-Dichlorosthens	ND	1
Icdomethane	MD	1
Methylene chloride	ND	1
Carbon disulfide	MD	2
Acrolein	ND	10
Acrylonitrile	NO	10
trans-1,2-Dichlorosthene	41	1
Vinyl acetate	, MD	10
1,1-Dicholroethane	ND	1
2-Butanone	ND	10
Chloroform	PLID	1
1,1,1-Trichlorosthane	MD.	1
Carbon tetrachloride	MD	1
1,2-Dichlorosthams	NID	1
Benzene	ND	1
Trichlorcethens	4759	1.
1,2-Dichloropropane		1 1 1
Bromodichloromethans	ND	1
2-Chloroethyl vinyl ether	ND	1
4-Methyl-2-pentanone	ND	10
cis-1,3-Dichloropropene	ND	1

inc.

14140 E. Alondra Boulevard Suite A Santa Fe Springs California 9 0 6 7 0

ENVIRONMENTAL

LABORATORIES

Telephone Telefax 310-926-9848 310-926-8324

Client:

Green Environmental, Inc.

Project:

1038-568

Job No:

502016

Data:02-08-95

Analysis: EPA 8240

Page 2 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

COMPOUND	ERBULTS IN Pg/kg B-6-1	Detection Limit
Toluene	2	1
trans-1,3-Dichloropropene	NID	7
2-Heranone	ND	10
1,1,2-Trichloroethane	ND	1
Tetrachlorosthene	7514	. ‡
Dibromochloromethane	ND	1
Chlorobensene	MD	<u>+</u>
Ethylbensene		± -
p+m-Zylene	MD	*
o-Tylene	4	2
Styrene		1
	ND	1
Bronoform	ND	1
1,1,2,2-Tatrachloroethane	ND	1
trans-1,4-Dichloro-2-butene	ND	1
1,3-Dichlorobenzene	ND	1
1,4-Dichlorobenzene	ND	1
1,2-Dichlorobensene	ND	1

System Monitoring Compounds	Surrogate thecovery	QC Limit (%)
1,2-Dichloroethane-d4	103	70-121
Toluene-d8	94	81-117
4-Bromoflurobeneze	106	74-121

inc.

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310-926-9848

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310-926-8324

Client:

Green Environmental, Inc.

Project: Job No:

1038-568

502016

Date: 02-08-95

Analysis: EPA 8240

Page 1 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

G0047	RESULTS IN pg/kg	Detection
COMPOUND	B-1-5'	īimit
Dichlorodifluoromethane	MD	1
Chloromethane	MD	1
Vinyl chloride	ND	1
Bromomethene	ND	1
Chloroethans	SVIC	1
Trichlorofluoromethane	MID	2
Acetone	ND	10
1,1-Dichloroethene	ND	1
Iodonethama '	ND	1
Methylane shloride	MD	1 1
Carbon disulfide	MD	2
Acrolain	- ND	10
Acrylonitrile	ND	10
trans-1,2-Dichloroethene	2	1
Vinyl acetate	ND	10
1,1-Dicholrosthans	NTO	1
2-Butanone	ND	10
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	ND	1
1,2-Dichlorosthans	ND	1
Benzene	. ND	1
Trichlorosthens	21 /	ī
1,2-Dichloropropane	NE	1
Bromodichloromethane	ND	1
2-Chlorosthyl winyl ether	ND	ī
4-Methyl-2-pentanone	ND	10
cis-1,3-Dichloropropens	ND	ī

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Green Environmental, Inc.

Project: Job No: 1038-568

502009

Date: 02-08-95

Analysis: EPA 8240

Page 2 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

COMPOUND	RESULTS IN µg/kg 8-6-1	Detection Limit
Toluene	ND	1
trans-1,3-Dichloropropens	ND	<u>-</u>
2-Hexanone	ND	10
1,1,2-Trichloroethans	ND	1
Tetrachloroethene	290 /	1
Dibromochloromethane	ND	1
Chlorobenzene	ND	1
Zthylbenzene	MD	1
p+n-Xylene	MD	2
o-Xylene	ND	1
Styrana	MD	1
Bromoform	3870	1
1,1,2,2-Tetrachloroethane	MD	1
trans-1,4-Dichloro-2-butane	ND	1
1,3-Dichlorobensene	ND	1
1,4-Dichlorobensene	KD	1
1,2-Dichlorobenzene	ND	1

System Monitoring Compounds	Surrogate Wecovery	QC Limit (%)
1,2-Dichloroethane-d4	105	70-121
Toluene-d8	109	81-117
4-Bromoflurobenese	103	74-121

inc. -

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Green Environmental, Inc.

Project: Job No:

1038-568

502016

Date:02-08-95

Analysis: EPA 8240

Page 1 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

	RESULTS IN pg/kg	Detection
COMPOUND	B-1-10'	Limit
Dichlorodifluoromethans	MD	1
Chloromethane	197D	1
Vinyl chloride	MD	1
Bromomethene	ND	1
Chloroethane	MD	1
Trichlorofluoromethane	MD	2
Acetone	MD	10
1,1-Dichloroethens	ND	1
Iodomsthans	MD	1
Methylene chloride	MTD	1
Carbon disulfide	MD	2
Acrolein	ND	10
Acrylonitrile	ND	10
trans-1,2-Dichlorosthene	MD	1
Vinyl acetate	ND	10
1,1-Dicholrosthans	ND	1
2-Butanose	ND	10
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon tetrachloride	MD	1 1
1,2-Dichloroethans	ND	1
Benzene	MD	1
Trichloroethene	. 66 /	ı
1,2-Dichloropropane	ND/	1
Bromodichloromethane) MO	ı
2-Chloroethyl vinyl ather	MD	1
4-Methyl-2-pentanone	ND	10
cis-1,3-Dichloropropane	ND	1

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Project:

1038-568

Job No:

502009

Date: 02-08-95

Analysis: EPA 8240

Page 2 of 2

Sample Date: 02-06-95

Analysis Date: 02-06-95

COMPOUND	RESULTS IX µg/kg B-6-1	Detection Limit
Toluena	MD	1
trans-1,3-Dichloropropens	ND .	ī
2-Hexanone	ND	10
1,1,2-Trichloroethane	ND	4
Tetrachlorosthene	1855	ī
Dibromochloromethane	ND	1
Chlorobenzene	ND	1
Xthylbenzene	ND	1
p+m-Xylene	ND .	2
o-Kylane	ND	1.
Styrene	ND	1
Bromoform	ND	1
1,1.2,2-Tetrachlorosthans	ND	1
trans-1.4-Dichloro-2-butene	ND	1
1.3-Dichlorobensene	MD	1
1,4-Dichlorchenzene	ND	1
1,2-Dichlorobenzene	ND	1

System Momitoring Compounds	Surrogate Mecovery	QC Limit (%)
1,2-Dichloroethane-d4	92	70-121
Toluena-d8	103	81-117
4-Bromoflurobeneze	98	74-121

inc.

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EPA 8240 Matrix Spike Recovery

Job No.:

502016

Lab Sample ID: Date Performed:

502009-06A

02-06-95

Compound	Sample bone	Spiles Addres	Opika Ses	Dug Res	Spilm Skep	Desp Vilor	ROMO-	ge Lindt RPD	QC Limit Vice
1.1-Dichloromene	5.9	19.0	9.8	10.2	98	102		14	71-136
Banzeno	0.5	10.0	11.1	11.1	106	104	6	14	80-120
Tricklorosthene	0.0	10.0	10,1	10.4	101	194	3	1.4	71-142
Toluena	1.7	10.0	12.6	12.4	169	107	2	1.5	80-11B
Chlorobenzana	0.5	10.0	11,1	10.9	106	184	2	15	84-120

8110 #203

Mobil Exploration & Producing U.S. Inc.

10735 SOUTH SHOEMAKER AVENUE SANTA FE SPRINGS, CALIFORNIA 90670

December 9, 1994

Christ (21)

Mr. George Baker
Hazardous Materials Specialist
Health Hazardous Materials Section
Inspection Section
Los Angeles County Fire Department
7300 East Alondra Blvd
Paramount, CA 90723

SUBMITTAL OF TETRACHLOROETHYLENE (PCE) INVESTIGATION REPORTS FOR THE MOBIL JALK FEE PROPERTY 10607 NORWALK BOULEVARD SANTA FE SPRINGS, CALIFORNIA

Dear Mr. Baker:

Enclosed are copies of the Levine Fricke and McLaren/Hart investigation reports for the tetrachloroethylene (PCE) contamination found at our Jalk Fee Property. I believe that these reports include the information you are looking for with regards to sampling protocol and lab results.

I would appreciate any information you could provide as to the status of the site investigation taking place on the Continental Heat Treating Inc. property. I would also like to receive a copy of the final report after the investigation has been completed.

Please let me know if you have any questions pertaining to the attached reports.

Sincerely,

Walker

Senior Environmental Engineer

SOIL REMEDIAL ACTION PLAN
FOR THE JALK FEE, BAKER/HUMBLE,
AND DEWENTER/JORDAN/GREEN PROPERTIES,
MOBIL-OPERATED SANTA FE SPRINGS
OIL FIELD
SANTA FE SPRINGS, CALIFORNIA

December 21, 1993

Prepared for:

Mobil Exploration and Producing, U.S., Inc. 10735 South Shoemaker Avenue Santa Fe Springs, CA 90670

Prepared by:

McLaren/Hart Environmental Engineering 16755 Von Karman Avenue Irvine, California 92714

This remedial action plan was completed under the direction of a California Registered Geologist.

Sam Marquis, R.G. 5110, R.E.A. 4972

Senior Hydrogeologist

G:\M\Mobil\Jalkrap2.2



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SECTION 1.0

INTRODUCTION

1.1 OVERVIEW AND OBJECTIVES

This document provides a remedial action plan (RAP) for the design, construction, and operation of an aboveground soil bioremediation cell to treat soil containing total petroleum hydrocarbons (TPH) above 1,000 parts per million (ppm). The majority of this TPH affected soil is from three properties in the Mobil-Operated Santa Fe Springs Oil Field in Santa Fe Springs, California:

- ► The Jalk Fee property at 10607 Norwalk Boulevard (Jalk Fee);
- The Baker/Humble 1 lease at 10720 Forest Avenue (Baker/Humble); and
- A five acre portion of the DeWenter/Jordan/Green lease at the northwest corner of Telegraph Road and Norwalk Boulevard (DeWenter/Jordan/Green).

These three properties have been active oil producing areas since the 1920s. The Jalk Fee and DeWenter/Jordan/Green contain active oil wells, while Baker/Humble contains only abandoned oil wells. Soil on the three properties contains crude oil from historical oil production. Figure 1 shows the locations of the three properties.

The objective of this remedial action is to excavate and remediate soils from each of the properties that contain TPH above 1,000 ppm. A bioremediation cell will be constructed on the Jalk Fee and will treat soil from the three properties. Soil from other properties within the Mobil-Operated Santa Fe Springs Oil Field will also be treated in this cell, although early bioremediation efforts will be focussed on soil from the three properties.

This RAP provides a detailed description of the planned bioremediation program to reduce TPH levels in soil to below 1,000 ppm. The RAP also includes a storm water management strategy for the excavation and remediation and a groundwater monitoring program at the bioremediation cell. This RAP presents the following:

- A brief summary of previous investigations conducted at the three properties and a description of the ongoing soil investigation at DeWenter/Jordan/Green.
- ► The rationale for using aboveground biological treatment for TPH-affected soils.
- A description of the soil bioremediation program, including the design and construction, monitoring, operation and maintenance, and closure of the bioremediation cell on the Jalk Fee.

- A storm water prevention plan for the bioremediation cell at the Jalk Fee and for soil excavation at all three properties.
- ▶ A groundwater monitoring program for the Jalk Fee.

The Jalk Fee contains two areas where chemicals other than crude oil are present:

- The boneyard in the southwest portion of the property where soluble lead, zinc, and copper were detected above the Soluble Threshold Limit Concentration (STLC) in soil; and
- The area adjacent to Continental Heat Treating in the southeast portion of the property where tetrachlorethylene (PCE) and other chlorinated hydrocarbons, most likely resulting from an offsite source to the immediate south, have been detected in soil (Figure 2).

This remedial action plan addresses only the TPH-affected soil. A Preliminary Endangerment Assessment (PEA) and RAP for the boneyard and PCE-affected soils is being prepared and will be submitted to the Department of Toxic Substances Control (DTSC).

All figures are included in Appendix A.

1.2 RATIONALE FOR ABOVEGROUND BIOREMEDIATION

Biodegradation is the breakdown of organic compounds by naturally occurring soil microorganisms. Bioremediation is the stimulation of this natural breakdown by enhancing the soil environment to provide optimal conditions for biodegradation. The most important environmental condition for enhancing biodegradation is the availability of oxygen. Other conditions that affect biodegradation include nutrient levels, temperature, pH, salinity, presence of toxic compounds such as heavy metals, and the concentration of the compounds being degraded.

Aboveground bioremediation typically involves spreading TPH-affected soil evenly over a treatment area, maintaining proper moisture content, adding nutrients to promote biological activity, and tilling the soil periodically to aerate the soil. The increased oxygen provided by aeration and the increased availability of nutrients stimulates the biodegradation of organic contaminants by the native microorganisms which utilize the organic compounds (in this case, petroleum hydrocarbons) as a source of carbon and energy for growth. The petroleum hydrocarbons are transformed into harmless byproducts of microbial metabolism such as carbon dioxide, water, and microbial biomass.

Aboveground bioremediation was selected as the remedial alternative for the TPH-affected soil at the three properties for the following reasons:

(1) Bioremediation is a proven, well-documented cleanup technology for TPH-affected soils.

- 2) Bioremediation can reduce the TPH concentration to below 1,000 ppm.
- (3) Bioremediation is more cost-effective than offsite disposal for large volumes of soil such as those anticipated for this project (i.e., greater than 10,000 cubic yards).

Aboveground bioremediation has been successfully used in similar oil production areas throughout Southern California to reduce petroleum hydrocarbon concentrations in soil. Aboveground bioremediation is expected to reduce TPH in soils excavated from each of the three properties to below 1,000 ppm within three to six months.

1.3 BACKGROUND

This section provides background information on each of the three properties.

1.3.1 Jalk Fee

The Jalk Fee occupies approximately 8.8 acres at 10607 Norwalk Boulevard (Figure 2). The property is bounded on the north, west, and south by industrial properties and to the east by Norwalk Boulevard. According to Levine-Fricke (1991b), the Jalk Fee has been used for oil production from the 1920s to the present. The current tenant, Hathaway Company, has conducted oil production activities at the site from the early 1980s to the present (Levine-Fricke, 1991c).

Most of the Jalk Fee is undeveloped land with four active oil wells and a small tank battery. The tank battery is in the northwest corner of the site and contains six above ground tanks. Three of the active oil wells are near the northern property boundary and one well is near the southern boundary. According to Levine-Fricke (1991c) five oil wells have been abandoned on the property and approximately eight former sumps (i.e., mud pits) associated with oil drilling and production have been observed in historic aerial photographs.

According to Levine-Fricke (1991c a small oil refuse area where metal objects were deposited (referred to as the boneyard area) was located in the southwest portion of the property from approximately 1920 until 1942. An aboveground storage tank farm was formerly located in the southeast portion of the property in the late 1920s and early 1930s (Figure 2) (Levine-Fricke, 1991c).

1.3.2 Baker/Humble

The Baker/Humble lease occupies approximately 1.2 acres at 10720 Forest Avenue (Figure 3). The site consists of a roughly square western section and a rectangular eastern section extending to the former Ward Avenue. The site is bounded on the north by Border Freight, Inc., on the south by Pioneer Business Forms and Scientific Lighting Products, on the west by Forest Avenue, and on the east by Murray's Landscape.

The site is a former oil field that operated from the late 1920's to the late 1980's. McLaren/Hart's (1993a) review of historical aerial photographs and records from 1928 to 1992 indicated the presence of sumps, aboveground tanks, and dark spots or other features that could indicate potential sources of chemicals. The western section was Mobil's Baker/Humble 1 tank battery, which consisted of four aboveground storage tanks. These tanks contained crude oil pumped from nearby oil production wells. The tanks were present on the site from at least 1963, when they were first visible on the aerial photographs reviewed for this assessment. According to Mr. Roger Persson of Mobil, the tanks were removed in the fall of 1992 (McLaren/Hart, 1993a).

1.3.3 DeWenter/Jordan/Green

The DeWenter/Jordan/Green lease occupies approximately 5 acres at the northwest corner of Telegraph Road and Norwalk Boulevard (Figure 4). The property is bounded on the north by the Texaco, Inc., oil field, on the south by Bradshaw, Inc., and North American Plywood, on the west by Geary Avenue, and on the east by Norwalk Boulevard. The site is in a mixed commercial and light industrial area. One active oil well, one recently plugged and abandoned oil well, one aboveground tank farm, one abandoned aboveground tank farm, and three concrete sumps formerly for crude oil storage are on the property.

1.4 Previous Site Investigations

Environmental site assessments and soil sampling investigations have been performed at the Jalk Fee and Baker/Humble. A Phase I environmental site assessment of DeWenter/Jordan/Green has been completed, although no soil sampling has been conducted. McLaren/Hart commenced a soil investigation at DeWenter/Jordan/Green on November 1, 1993. The scope of work for the ongoing investigation is presented in Subsection 1.5. The following two subsections describe the subsurface investigations at the Jalk Fee and Baker/Humble.

1.4.1 Jalk Fee

According to Levine-Fricke (1991b,c), Woodward-Clyde Consultants (WCC) completed a subsurface investigation at the Jalk Fee in August, 1988. The investigation included a geophysical survey, surface soil sampling, and a soil boring and sampling program. The study was cancelled by a party other than Mobil prior to completion and only a partial report was prepared by WCC. The results were summarized in WCC's report dated September 14, 1988 entitled "Preliminary Investigation Report". The results from the investigation by WCC confirmed the presence of a former boneyard in the southwest portion of the property measuring approximately 150 feet by 150 feet and the potential presence of chlorinated compounds in soils based on apparent solvent-like odors in the southeast section of the site. Chemical analyses of soil samples obtained by WCC detected mercury and lead in one composite sample from soil borings in the former boneyard (Levine-Fricke, 1991b,c).

Levine-Fricke (1991b) conducted subsurface investigations at the Jalk Fee between November 1990 and September 1991. The field investigations included a shallow methane gas survey, the excavation of shallow trenches in the former boneyard and eight former sump areas, and 27 shallow soil borings to depths ranging from 20 to 55 feet below grade. The selection of the trench and soil boring locations were based on information presented in the incomplete report prepared by WCC, discussions with Mobil personnel familiar with the site, and review of historical aerial photographs. The results from the investigation were presented in Levine-Fricke's (1991b) December 6, 1991, report entitled "Draft Subsurface Soil Investigation, Jalk Fee Property" and briefly summarized in Levine-Fricke's (1991c) December 18, 1991 report entitled "Draft Remedial Action Plan, Jalk Fee Property".

The results from Levine-Fricke's (1991b) subsurface investigation indicated that only 10 of the 21 areas investigated had chemicals in soil. These 10 areas were: (1) the former boneyard; (2) the former aboveground storage tank farm; (3) former Sump 7; (4) former Sump 4; (5) the active oil wells; (6) the existing aboveground storage tank farm; (7) former Sump 8; (8) the northwest property boundary near an off-site equipment repair yard; (9) the northeast property boundary near an off-site equipment storage and maintenance yard; and (10) the southern portion (southern property boundary) of the property near an off-site equipment storage and repair area. The locations of these areas are shown in Figure 2 (Levine-Fricke, 1991b,c).

Six of the eight former sump areas did not contain concentrations of TPH in soils at levels above the regulatory guideline for crude oil (1,000 ppm). Two of the former sumps (Sumps 4 and 7) were found to contain TPH concentrations greater than 1,000 ppm. The vertical and lateral extent of affected soils was assessed for each of these areas. The concentrations of TPH were below 1,000 ppm in soil samples collected from former Sumps 1, 2, 3, 5, and 8 (Levine-Fricke, 1991b,c).

Lead and zinc were detected in soil samples collected from former Sump 8 and lead and copper were detected in soil samples collected from the boneyard area. The Waste Extraction Test (WET) was used to further assess the soluble metal concentrations in those samples. The WET analysis did not detect copper in soil samples collected within the boneyard area at concentrations above the Soluble Threshold Limit Concentration (STLC) value of 25 ppm, as listed in Title 22 of the California Code of Regulations, Section 66261.24. The WET analysis detected lead in a few soil samples collected from the boneyard area at concentrations above the STLC value of 5 ppm for lead. Lead and zinc were detected in one sample collected from former Sump 8 at concentrations above their STLC values of 5 ppm and 25 ppm, respectively. Statistical analysis of the results of the field samples indicated that, although an occasional sample may exhibit results in excess of STLC limits, the mean concentration of all metals, except lead in the former boneyard area, was below STLC limits (Levine-Fricke, 1991b,c).

The area near Continental Heat Treating in the southeast portion of the Jalk Fee contained up to 2,500 ppm tetrachloroethylene (PCE) and other chlorinated compounds. Petroleum hydrocarbons up to 29,000 ppm were also detected in soil at this location. Based on the analytical results from soil samples collected from soil boring SB-3, Levine-Fricke (1991b)

estimated that PCE-affected soil extends vertically from ground surface to approximately 20 feet below ground surface at this location (Levine-Fricke (1991b,c). PCE was also detected in one surface sample obtained along the northern property boundary (near SB-17, Figure 2) at a concentration of 0.037 ppm.

Levine-Fricke (1991b) concluded that the lead-affected soils and the PCE-affected soils will require remediation.

1.4.2 Baker/Humble

A soil investigation was conducted by McLaren/Hart at Baker/Humble between June 24 and 28, 1993. The investigation consisted of completing eight trenches and obtaining soil samples in areas where historical aerial photographs and our site inspections showed evidence of sumps, aboveground tanks, dark spots, or other features that could indicate potential sources of chemicals. The results from the investigation were presented in McLaren/Hart's August 11, 1993, report entitled "Environmental Characterization at the Mobil Baker/Humble Lease, 10720 Forest Avenue, Santa Fe Springs, California".

The trenches were sampled at a frequency of approximately one sample location for every 20 feet of trench for a total of 18 sample locations (Figure 3). In the eight trenches, a total of 50 soil samples were collected from 18 total soil sample locations using an Extend-a-Hoe bucket. Soil samples were also obtained from six hand auger borings (Figure 3). These soil samples were to be used to document the presence or absence of metals in surface soils.

All soil samples from the soil trenches were analyzed for TPH by EPA Method 418.1. At each trench where field evidence of petroleum hydrocarbons in soil was present, the sample with the most field evidence of petroleum hydrocarbons was submitted for analysis of volatile organic compounds (VOCs) by EPA Method 8240, semi-volatile organic compounds (SVOCs) by EPA Method 8270, and California Assessment Manual (CAM) Title 22 metals by EPA Method 6010/7000 (17 metals). The sample below this was analyzed for benzene, toluene, xylenes, and ethylbenzene (BTXE) by EPA Method 8020. The surface samples obtained from the six hand auger borings were analyzed for CAM Title 22 metals by EPA Method 6010/7000.

Based on field observations and analytical results from the soil investigation at Baker/Humble, McLaren/Hart (1993b) reached the following conclusions:

(1) Soil with TPH above 1,000 ppm was encountered only in the western portion of the site (Figure 3). The TPH above 1,000 ppm was found from approximately ground surface to 10 feet below grade in the area around the former aboveground tanks and from approximately 2 to 6 feet deep at the edges of this area. Localized areas around oil wells also exceeded 1,000 ppm TPH.